REMARKS

A total of 36 claims remain in the present application. The foregoing amendments are presented in response to the Office Action mailed September 20, 2005, wherefore reconsideration of this application is requested.

By way of the above-noted amendments, claims 24 and 38 have been amended to ensure consistency in the definition of the claimed subject matter of claims 24-38 inclusive. In particular, the preamble of both of these claims has been amended to define "A network element ... ". Clearly, no new subject matter has been introduced.

Referring now to the text of the Office Action:

- claims 1, 3-5-8, 12-14, 17, 19-21-24, 26-28, 30, 32-34 and 37 stand rejected under 35 U.S.C. § 102(e), as being unpatentable over the teaching of United States Patent Application Publication No. 2002/0149823 (Bergano et al.);

- claim 9 stands rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of United States Patent Application Publication No. 2002/0149823 (Bergano et al.) in view of United States Patent Application Publication No. 2001/052973 (Marro et al.);

- claim 10 stands rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of United States Patent Application Publication No. 2002/0149823 (Bergano et al.) in view of United States Patent Application Publication No. 2001/052973 (Marro et al.), and further in view of Applicant's allegedly admitted prior art at paragraphs 36 and 38 of the specification;

- claims 11, 22, 23 and 31 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of United States Patent Application Publication No. 2002/0149823 (Bergano et al.) in view of Applicant's allegedly admitted prior art at paragraphs 36 and 38 of the specification; and

- claims 6, 7, 15, 16, 18, 29, 35, 36 and 38 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As an initial matter, applicant appreciates the Examiner's indication of allowable subject matter in claims 6, 7, 15, 16, 18, 29, 35, 36 and 38. The Examiners claim rejections under 35 U.S.C. §§102(e) and 103(a) are believed to be traversed in view of the following discussion.

Rejections under 35 U.S.C. §102(e)

At paragraph 2 of the detailed action, the Examiner asserts that Bergano discloses " ... detecting a polarization state of the signal (FIGs. 0026, 0040 and 0042, where detecting the phase modulation of the received signal indicates detecting the change in the polarization state of the signal from its initial state); and evaluating the PDL using the predetermined initial polarization state and the detected polarization state (paragraphs 0043, 0044 and 0046). Applicant respectfully disagrees.

At FIGs. 4 and 5, and the accompanying description in the specification at paragraphs 0035-0040, Bergano teaches that the receiver 122 includes a phase detector 410 for detecting phase modulation (at the polarization modulation frequency, f_{pol}, see para 0026) of the returning signal, and an amplitude detector 411 for detecting an amplitude modulation of the returning signal (again at f_{pol}). At paragraph 0033, Bergano states that "If the probe signal encounters a location in the path that has polarization dependent loss, the amplitude of the returning signal at the receiver 122 will acquire an amplitude modulation between P1 and P2. If the probe signal encounters a location in the path that has polarization mode dispersion, the time of flight between P1 and P2 would be altered such that the returning signal acquires a delay or phase modulation on top of the 1 GHz modulation." Thus Bergano explicitly teaches that the detected amplitude modulation of the returning signal (at the polarization modulation frequency, f_{pol}, see para 0026) is indicative of polarization dependent loss (PDL), whereas the detected phase modulation (again at f_{pol}) is indicative of polarization mode dispersion (PMD).

The person of ordinary skill in the art will recognise that the receiver 122 of Bergano does not attempt to measure the polarization state of the returning signal. In that respect, Bergano teaches that the Optical-to-Electrical receiver (converter) 406 "may take a variety of known configurations such as a simple amplitude detector." (Paragraph 0037) As is well known in the art, such an O/E converter detects only the bulk optical power of the returning optical signal, so that the electrical signal 407 will contain no information of polarization angle. As such, the phase and amplitude detectors 410 and 411 can detect variations in the received optical power, but there is no means by which the detected phase/amplitude variations (or the upper and lower values) can be attributed to either of the two transmitted polarizations. For example, the amplitude modulation detected by the amplitude modulator 411 indicates the difference between received power levels of the two transmitted polarizations. However, the receiver 122 has no way of determining which polarization has the higher detected power level, and which one has the lower detected power level. Nor can it determine the orientation of either polarization at the receiver. Consequently, the polarization state of the detected optical signal is ambiguous, and there is no way to resolve the ambiguity from the output of the O/E converter 406. A similar situation exists with respect to the phase detector 410, because it too operates on the output of the O/E converter 406. As such, the embodiment illustrated in FIGs. 4 and 5, and described in the specification cannot detect the polarization state of the recieved optical signal. Moreover, Bergano et al do not provide any teaching of alternative embodiments in which this functionality is provided.

As noted above, Bergano et al do not teach a step of detecting the polarization state of the received optical signal. It follows, therefore, that Bergano et al do not teach a step of evaluating the PDL using the predetermined initial polarization state and the detected polarization state. In fact, Bergano et al teach directly away from the solution of the present invention, by teaching that PMD (and PDL) are estimated by comparing changes in the PMD (and PDL) produced by inserting different optical reference elements 222 into the optical signal path at the transmitter. See FIGs. 2 and 7, and paragraphs 0044 and 0045.

In light of the foregoing, it is respectfully submitted that the presently claimed invention is clearly distinguishable over the teaching of United States Patent Application Publication No. 2002/0149823 (Bergano et al.).

Rejections under 35 U.S.C. §103(a)

As noted above, Bergano et al fail to teach all of the elements of independent claims 1, 19 and 24. None of the other known prior art provides the missing teaching. Accordingly, it is respectfully submitted that the presently claimed invention is clearly distinguishable over the teaching of the cited references, taken alone or in any combination. Thus it is believed that the present application is in condition for allowance, and early action in that respect is courteously solicited.

If any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this response, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 19-5113.

Respectfully submitted,

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